4. NORMAL PROCEDURES

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4. NORMAL PROCEDURES

4.1 PRESENTATION

This section describes the procedures for normal operation.

NOTE

Normal procedures associated with optional systems are in section 9. Supplements.

4.2 SPEEDS

Takeoff: ..... 110 km/h (59 kt)

Normal climb: ..... 160 km/h (86 kt)
Best climb angle (Vx):..... 130 km/h (70 kt) (cat. U)
120 km/h (65 kt) (cat. A)
Optimum climb (Vy) allowing for
Best climb rate (Vz max.):..... 150 km/h (81 kt) 15° flap
160 km/h (86 kt) clean config.
Descent: ..... 200 km/h (108 kt)
Approach:..... 150 km/h (81 kt) 15° flap
120 km/h (65 kt) Full flaps
Recommended speed
for turbulence penetration:..... 200 km/h (108 kt)

Maximum demonstrated crosswind: ..... 37 km/h (20 kt)

4.3 CHECK-LIST OF NORMAL PROCEDURES

4.3.1 Pre-flight inspection

Cockpit

Make certain cockpit is clean.
Master switch..... OFF
Alternator switch ..... OFF
Magnetos..... OFF
Fuel selector switch ..... OPEN, FWD TANK

CAUTION

For aerobatics, the rear tank must be empty and the ELT must be removed.

Flight controls ..... FREE, in CORRECT DIRECTION
Engine controls..... FREE
Battery contact..... ON
Stall warning indicator..... CHECKED
Warning lights..... CHECKED
Fuel gauges..... CHECKED
Battery contact..... OFF
Seat belts and harnesses ..... CHECKED
Canopy attachment..... CHECKED
Release handle..... CHECKED

Before getting down from aircraft
Fuel tank..... visual inspection
Fuel cap..... closed and locked

Left wing

Flap	hinges and control
Aileron	hinges and control
	Balance plates and deflection
Pitot	clean, not clogged
Main landing gear	shock absorber checked and tyre inflated
Underwing inspection door	locked

Fwd fuselage

Tank drain	checked
Exhaust	checked
Lower inspection door	closed and locked
Cowl left door	closed and locked
Propeller	condition and attachment
Spinner	condition and attachment
Air inlet	free
Oil level	checked
	(6 qt maximum for aerobatics)
Cowl right door	closed and locked

Right wing

Main landing gear	shock absorber checked and tyre inflated
Underwing inspection door	locked

Aileron	hinges and control
	Balance plates and
	deflection
Flap	hinges and control

Rear right fuselage

Static port.....	clean and not clogged
Antennas	VISUAL INSPECTION
Door.....	locked

Horizontal stabiliser

Horizontal stabiliser	ATTACHMENT
Elevator and vertical stabiliser	hinges and control
	Deflection and cable tension
Rudder tab.....	hinges and control
Elevator tab	hinges and control

Tail wheel

Tail wheel rubber	Good condition
Conjugation springs	Condition and operation

Aft left fuselage

Static port	CLEAN, NOT CLOGGED
Tank drains (qty: 2).....	CHECKED
Inspection door under fuselage.....	Closed and locked
Tank cap.....	CLOSED and LOCKED

4.3.2 Before starting-up

Parking brake ..... ON
Seats ..... ADJUSTED and LOCKED
Pilot and passenger seat belts..... ATTACHED
Master switch ..... OFF
Alternator switch ..... OFF
Magnetos..... OFF
Electrical equipment ..... OFF
Flaps/trim switch (as appropriate)..... ON
Avionics switch (as appropriate) ..... ON
Mixture ..... LEAN
Cockpit heating..... CLOSED

4.3.3 Starting up cold engine

Master switch ..... ON
Flaps ..... RETRACTED - CHECKED
Anti-collision light..... ON
Throttle lever ..... PUSHED (FULL THROTTLE)
Mixture ..... FULL RICH
Tank selector switch ..... FWD
Electric pump..... ON
Fuel flow meter..... CHECKED
Electric pump..... STOP
Throttle lever ..... 1 cm
Mixture ..... LEAN
Magnetos..... 1 + 2
Starter ..... on request

Mixture..... RICH as soon as engine is running

Throttle lever..... set for 1 000 rpm

4.3.4 Starting up hot engine

Master switch..... ON

Anti-collision light (as appropriate)..... ON

Throttle lever..... 4 to 5 cm

Mixture..... LEAN

Magnetos..... 1 + 2

Starter..... on request

Mixture..... RICH as soon as engine is running

Throttle lever..... set for 1 000 rpm

4.3.5 Engine heating

Engine speed..... 1 000 to 2 000 rpm

NOTE

Do not exceed 1 000 rpm for the first minute.

Oil pressure ..... CHECKED (4 to 6 bars)

NOTE

If the oil pressure did not rise to above 1.8 bar within 30 seconds after start-up, stop the engine and proceed with verification.

Fuel pressure..... CHECKED

Cut-off test (magnetos) ..... DONE

Alternator switch ..... ON

Battery charge ..... CHECKED
Electrical equipment ..... ON
Rear tank test ..... 5 min (if use intended)

NOTE

Takeoff is authorised when the oil temperature reaches the green zone.

4.3.6 Taxiing

Parking brake ..... RELEASED
Brakes and conjugation test ..... DONE

NOTE

When starting off, make certain the tail wheel conjugation is operative by checking that the aircraft responds correctly to rudder pedal movements.

4.3.7 Run-up

Brakes ..... APPLIED
(use the pedals)
Temperatures and pressures..... CHECKED
Mixture ..... FULL RICH
Magnetos check at 1 800 rpm..... 1, then 1 + 2
2, then 1 + 2

NOTE

Permitted engine drop: 125 rpm per magneto.
Maximum difference between magnetos: 50 rpm.

Idle ..... test
Magnetos..... cut-off test
Mixture ..... LEAN then RICH

4.3.8 Vital actions before takeoff

Engine

Tank selector switch ..... FWD
Autonomy ..... CHECKED
Mixture..... SET MAX POWER
Master switch..... ON
Alternator switch ..... ON
Battery charge ..... CHECKED
Magnetos..... 1 + 2

Flight controls

Elevator ..... free in correct direction
Lateral control..... free in correct direction
Rudder pedals ..... free in correct direction
Elevator tab ..... CHECKED then NEUTRAL
Flaps..... FULL FLAPS then 15°

Equipment

Mechanical accelerometer ..... reset
Altimeter ..... SET
VHF ..... SET

Cockpit

Canopy ..... Closed and locked
Seat belt and harnesses ..... ATTACHED
Brakes ..... RELEASED

4.3.9 Takeoff

Throttle lever ..... FULL THROTTLE
Maximum engine speed..... CHECKED 2 250 ± 50 rpm
Tail up ..... from 50 km/h (27 kt)
Takeoff speed..... 110 km/h (59 kt)

NOTE

Propeller torque is to the left on this aircraft.

Engine speed ..... check 2300 rpm ± 50rpm
Initial climb..... 140 km/h (76 kt)
Flaps ..... RETRACTED (91 m - 300 ft)
Normal climb ..... 160 km/h (86 kt) clean config.

4.3.10 Climb speed

Best climb angle (Vx)..... 130 km/h (70 kt) (cat. U)
120 km/h (65 kt) (cat. A)
Optimum climb (Vy) allowing for
Best climb rate (Vz max.)..... 160 km/h (86 kt) clean config.

NOTE

To obtain the best rate of climb (Vz max.), keep full power and check the engine speed for 2 350 rpm, retract flaps, check pressures and temperatures.

4.3.11 Cruise

In cruising flight, you are advised to use the mixture control at all altitudes. Consumption is then reduced and can be diminished by about 15 %.
The maximum continuous engine speed of 2 700 rpm must in no event be exceeded.
To obtain the best mixture, slowly reduce the mixture going from the full rich position until you obtain maximum power: in the case of a fixed pitch propeller, gradually reduce the mixture until the tachometer shows start of engine speed loss.
If the aircraft is equipped with an EGT indicator, this point represents the maximum temperature. We advise enriching the mixture until the temperature is 50°F (generally 2 graduations) below the maximum observed temperature.
Where there is no EGT, we advise you to enrich the mixture by rotating the mixture knob over two complete turns.

REMARK

Also see the Engine User's Manual.

4.3.12 Descent

Mixture	FULL RICH
Tank	THE FULLEST
Engine speed	1 700 to 1 800 rpm
Recommended speed	200 km/h (108 kt)
Pitot heat	according to weather conditions

4.3.13 Approach

Speed flaps 15 °	150 km/h (81 kt)
Speed flaps 40 °	120 km/h (65 kt)

4.3.14 Interrupted landing

Go-around

Configuration ..... FULL THROTTLE – Full flaps

Best rate of climb speed (Vy)..... 135 km/h (73 kt)

Flaps ..... 15°

NOTE

To obtain the best rate of climb (Vz max.), keep full power and check the engine speed for 2 350 rpm, retract flaps, adjust speed for best rate of climb, i.e. 160 km/h (86 kt) and check pressures and temperatures.

NOTE

In category A, these performance levels are improved in relation to reduction in weight.

4.3.15 Engine shut-down

Parking brake ..... ON

NOTE

If brakes are used intensively during landing and taxiing up to the parking area, do not apply the parking brake before the wheels have cooled down; use chocks.

Electrical equipment ..... OFF

Cut-off test (1 000 rpm)..... DONE then 1 + 2

REMARK

For a short taxiing period before shut-down, let the engine run for 1 (one) minute at 1 100 rpm.

Engine speed ..... 1 100 rpm

Oil pressure ..... CHECKED
Mixture..... LEAN
Magnetos..... OFF
Alternator switch ..... OFF
Anti-collision ..... OFF
Flaps..... EXTENDED
Master switch..... OFF
Tank selector switch ..... CLOSED

4.3.16 Manoeuvres

For any aerobatics manoeuvre:

- the overall weight of the aircraft must be less than 780 kg (1 720 lb) ;
- centre of gravity must be forward of 26 %;
- aft tank must be empty (use fwd tank).

Minimum recommended speeds when beginning trick

	Single-seater		Two-seater	
Manoeuvres	km/h	kt	km/h	kt
Loop	220	119	230	124
Split S	210	113	220	119
Slow roll	220	119	230	124
Snap manoeuvre	140	76	140	76
Inverted loop	250	135	270	146
Wingover	200	108	200	108

Caution

Electrical flaps system switched off in category A.
A/C equipped with an electrical tab: switch system off in category A.

4.3.17 Stalls

You can perform stalls with or without engine in all permitted weight and C.G. configurations.
Generally, stalling is not preceded by warning signs. Only the indicator light comes on in a positive stall.
In negative flight, stalls must always happen in clean configuration.

4.3.18 ELT

The emergency beacon must be removed by the pilot or a mechanic before any aerobatic flight.

4.4 SPINS

Spinning on CAP10 is authorised with engine on idle in category A.

The loss of altitude is about 400 feet per rotation, i.e. 120 metres. Each spin rotation takes about 2 seconds.

4.4.1 Instructions for recovery from positive or negative spin

Positive spin

Rudder	full opposite rudder (opposite to direction of rotation)
Elevator	nose-up sector
Lateral control.....	roll towards spin

Negative spin

Rudder..... full opposite rudder (opposite to direction of rotation)
Elevator ..... nose-up sector
Lateral control..... neutral

If the rudder, elevators or ailerons are not kept in the position indicated above, recovery still remains possible but will tend to take more time.

In all events you must:

BE SURE TO KEEP DIRECTION OF RUDDER FULL OPPOSITE TO DIRECTION OF ROTATION

4.4.2 Influence of centre of gravity

CAUTION

Mainly by acting on the aircraft's attitude, the centre of gravity has tremendous influence on CAP10's behaviour in spin.

Aft C.G. (24 to 26%)

Flat attitude, about 50°, indicated airspeeds of about 150 km/h, tendency to level out more to left than to right.

Fwd C.G (22 to 20%)

Dive attitude up to 70° indicated airspeed being capable of exceeding 180 km/h, tendency to dive more to right than to left.
Risk of Va being exceeded during spin and recovery. Immediately apply instructions for recovery as soon as speed reaches 180 km/h.

4.4.3 Influence of stick position

CAUTION

The stick position (roll control) has an influence on the CAP10's behaviour during spin.

Stick to counter spin

For example, in left spin, the stick to the right tends to level spin out and, as a result, reduce the indicated airspeed.

CAUTION

In the case of spin with centre of gravity aft, this manoeuvre may prove to be dangerous by exacerbating the tendency to level out and delaying the recovery time.

Stick in direction of spin

For example, in left spin, the stick to the left tends to agitate and/or deepen the spin and, as a result, increase the indicated airspeed.

CAUTION

Whatever the centre of gravity, this manoeuvre may prove to be dangerous due to the increased risk of:

- turbulent to very turbulent spin;
- increase in speed;
- transition to a flick roll.

In all cases listed above, apply the instructions for recovery (see § 4.4.1).

NOTE

In the event of engine shut-down during spin, immediately apply the instructions for recovery from spin then apply the instructions for engine re-start (SECTION 3).

Summary

CAP10's behaviour in spin can be summarised as follows:

Spin stick against direction of spin

- calm
- low speed
- long recovery time

Spin stick in direction of spin

- turbulent to very turbulent
- high speed and unstable
- short recovery time